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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,846	08/25/2006	Masaharu Ueda	1551-0158PUS1	4142

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EXAMINER

FOGARTY, CAITLIN ANNE

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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09/10/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/590,846	Applicant(s) UEDA ET AL.	
	Examiner CAITLIN FOGARTY	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2009 has been entered.

Status of Claims

2. Claims 1, 2, and 13 – 20 are pending where claims 1 and 2 have been amended. Claims 3 – 12 have been cancelled.

Status of Previous Rejections

3. The 35 U.S.C. 103(a) rejection of claims 1, 2, and 13 – 20 as being unpatentable over the English machine translation of JP 2002-226914 in view of the English machine translation of JP 11-350075 has been maintained.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

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one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim 1 and 2 amended limitation that S is the maximum rolling interval time (seconds) and is less than or equal to 0.85 seconds has support for the maximum of 0.85 seconds in Fig. 3 of the specification. However, the instant specification does not have literal support for a minimum of zero seconds as recited in instant claims 1 and 2. The minimum value of S that has literal support in the instant specification is 0.1 seconds as seen in Fig. 3.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 2, and 13 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereinafter JP '914) in view of the English machine translation of JP 11-350075 (hereinafter JP '075).

With respect to amended instant claim 1, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon with a similar composition to that of the instant invention. JP '914 teaches that the method comprises finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 1.

JP '914 differs from instant claim 1 because the composition of the steel rail taught by JP '914 does not contain N as required by the amended claim 1. However, [0008] of JP '075 discloses a steel rail having a high content of carbon with an overlapping composition as seen in the table below.

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Element	Instant Claims 1&2 (mass%)	JP '075 (mass%)	Overlapping Range (mass%)
C	0.85 – 1.40	0.60 – 1.20	0.85 – 1.20
Si	0.05 – 2.00	0.10 – 0.50	0.10 – 0.50
Mn	0.05 – 2.00	0.30 – 1.20	0.30 – 1.20
B	0.0001 – 0.0050	0.0001 – 0.0050	0.0001 – 0.0050
N	0.0060 – 0.0200	0.0060 – 0.0200	0.0060 – 0.0200
Cr	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00
Mo	0.01 – 0.50	0.01 – 0.20	0.01 – 0.20
Co	0.003 – 2.00	0.1 – 2.0	0.1 – 2.0
Cu	0.01 – 1.00	0.05 – 1.00	0.05 – 1.00
Ni	0.01 – 1.00	0.05 – 1.00	0.05 – 1.00
Ti	0.0050 – 0.0500	0.005 – 0.05	0.005 – 0.05
Mg	0.0005 – 0.0200	----	----
Ca	0.0005 – 0.0150	----	----
Al	0.0100 – 1.00	----	----
Zr	0.0001 – 0.2000	----	----
V	0.005 – 0.500	0.01 – 0.20	0.01 – 0.20
Nb	0.002 – 0.050	0.005 – 0.05	0.005 – 0.05
Fe + Impurities	Balance	Balance	Balance

It would have been obvious to one of ordinary skill in the art to use the composition of the steel of JP '075 in the method of JP '914 because the steel of JP '075 may also be used as a rail steel and the addition of nitrogen in the steel prevents the oxidation of the impurity level of aluminum in the steel (see [0013] of JP '075).

JP '914 in view of JP '075 differs from instant claim 1 because they do not specifically teach expression 1. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C. Therefore, JP '914 in view of JP '075 satisfies expression 1 if, for example, C is 0.85 and T is 900°C (therefore CPT1=1.05) because S may be less than 1.05.

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In regards to amended instant claim 2, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon comprising finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 2. JP '914 differs from instant claim 2 because the composition of the steel rail taught by JP '914 does not contain N as required by the amended claim 2. However, [0008] of JP '075 discloses a steel rail having a high content of carbon with an overlapping composition as seen in the table above. It would have been obvious to one of ordinary skill in the art to use the composition of the steel of JP '075 in the method of JP '914 because the steel of JP '075 may also be used as a rail steel and the addition of nitrogen in the steel prevents the oxidation of the impurity level of aluminum in the steel (see [0013] of JP '075).

JP '914 in view of JP '075 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more. Therefore, JP '914 in view of JP '075 satisfies expression 2 if, for example, C is 0.85, T is 900°C, and P is 3 (therefore $CPT^2=1.05$) because S may be less than 1.05.

Since the claimed compositional ranges of claims 1 and 2 either overlap or are within the ranges disclosed by JP '075, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time

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the invention was made to select the claimed steel rail composition from the steel rail composition disclosed by JP '075 because JP '075 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

Regarding instant claims 13 and 17, JP '914 in view of JP '075 does not specifically teach the recited chemical relationship. However, the steel rail of JP '914 in view of JP '075 would satisfy the relationship if, for example, V is 0.05, Nb is 0.005, and N is 0.0060. In addition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

With respect to instant claims 14 and 18, the abstract and [0009] of JP '914 disclose that immediately after the finish rolling step, the surface of the rail head is cooled at a cooling rate of 0.5-50°C./s until the surface temperature reaches 800-950°C. These ranges overlap with the ranges recited in instant claims 14 and 18.

In regards to instant claims 15, 16, 19, and 20, the abstract of JP '914 teaches that the steel rail is cooled to 800-950°C at a cooling rate of 0.5-50°C./s on the rail surface and then subjected to natural cooling. These ranges overlap with the ranges recited in instant claims 15, 16, 19, and 20. Therefore, it would have been obvious to one of ordinary skill in the art to cool the surface of the rail head at a cooling rate of 2-

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30°C.s until the surface temperature reaches a desired temperature and then allow the rail to further cool at room temperature (natural cooling) because it is well known in the art to cool at a desired cooling rate first to a desired temperature and then allow the cooling to finish naturally at room temperature as evidenced by JP '914.

Since the claimed rolling interval time, temperature ranges, and cooling rates of claims 1, 2, and 13 – 20 either overlap or are within the ranges disclosed by JP '914, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed rolling interval time, temperature ranges, and cooling rates from the rolling interval time, temperature ranges, and cooling rates disclosed by JP '914 because JP '914 teaches the same utility (i.e. a method for producing a steel rail having a high content of carbon) in the whole disclosed range.

Response to Arguments

8. Applicant's arguments filed May 21, 2009 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

a. Applicants respectfully disagree and submit that neither “expression 1” of claim 1 nor “expression 2” of claim 2 is satisfied by the cited art. It is only possible to satisfy these expressions if specific conditions, e.g. the carbon content of the steel in mass%, the maximum surface temperature (°C) of a rail head and the number of passes (claim 2 only) are arbitrarily selected. In an effort to further distinguish the present invention from the cited art, Applicants

have specifically defined S to be less than or equal to 0.85 seconds. It is immediately evident that this value of S is not suggested by the cited art.

Moreover, such a value is not inherent since the Examiner's selection of various parameters led to a calculated S value of 1.05, which is greater than the S value parameter now claimed.

b. The particular value of S of 0.85 seconds or less is clearly shown in Fig. 3 of the present application to impart greatly improved ductility. Such results are clearly superior and unexpected over the cited art.

Examiner's responses are as follows:

a. As discussed in the above 35 U.S.C. 103(a) rejection, the Examiner maintains the position that [0009] of JP '914 teaches that the maximum rolling interval time (S) is 10 seconds or less which overlaps with the time recited in instant claims 1 and 2. Furthermore, the calculated CPT1 and CPT2 value of 1.05 calculated by the Examiner as an example satisfies the recited relationships in claims 1 and 2 because S must be less than the value of CPT1 and CPT2. Therefore, S must be less than the exemplary calculated value of 1.05 and in the case of JP '914 S is 10 seconds or less which overlaps with the required time range.

b. Applicant has not provided factual evidence to show unexpected results over the cited art for the value of S.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

CF